

REMARKS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Applicants are pleased to note the Examiner indicated that claims 11, 12, 23, 24, 32-36, 38, 39, and 42-45 are allowed and that claims 3, 4, 7, 13, 15, and 27 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims and claim 21 would be allowed if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all the limitations of the base claim.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5). Applicants have amended FIG. 9A, FIG. 9B, FIG. 9C, and FIG. 9D to include the reference numeral 200 referring to the gas grooves.

Please see the enclosed Drawing Change Authorization Request. Therefore, the Applicants respectfully request that the objection to the drawings be withdrawn and that the drawing changes be approved.

Claim Objections

Claim 21 is objected to because of informalities. Claim 21 has been amended to include all the limitations of the base claim 20 which was cancelled in the Amendment filed May 28, 2002. Therefore, Applicants respectfully request withdrawal of the objection to claim 21.

Claim Rejections 35 USC § 112

Claims 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection. The term "low" is not recited in claim 21. Applicants submit that claim 21 contains the phrase "lower than" which is a relative terminology well understood by one of ordinary skill in the art. With regard to the terms "soft" and "softened," Applicants submit that these terms are clearly defined in claim 21 in the following limitation "a soft metal film made of a material having a softening point lower than a process temperature of said object to be processed which is softened at a process temperature of said object to be processed." Accordingly, one of ordinary skill in the art would understand what is meant by "soft metal made of a material having a softening point..." and "softened at a process temperature..."

Consequently, Applicants respectfully submit that all pending claims are in full compliance with 35 USC §112.

Claim Rejections – 35 U.S.C. § 103

Claims 2, 14, 25, 29-31, 37, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heimanson *et al.* (US Pat. No. 5,775,416) in view of Gilchrist *et al.* (US Pat. No. 5,846,375). Applicants respectfully traverse this rejection for at least the following reasons.

The Office Action contends that Heimanson *et al.* teaches an electrode structure with an electrode unit (Figure 1) and placement table having a heater unit 28 therein; a cooling block 34 joined to the electrode unit and having a cooling jacket 38 which cools said electrode unit; a labyrinth heat transfer space 50 provided on at least one of opposite surfaces of said electrode unit and said cooling block; and electrode-side heat transfer gas supply means 92, 72, 76, 84 for supplying a heat transfer gas to said labyrinth heat transfer space. Applicants respectfully disagree. Heimanson *et al.* merely describes “a second cavity 50” formed by the O-ring seal 44 and annular seat 46, together with the respective bodies 26 and 36 of the heating and cooling units 24 and 34 (see, Figure 1 and col. 3 lines, 50-52 in Heimanson *et al.*). The second cavity 50 in Heimanson *et al.* is a simple space and does not form a labyrinth heat transfer space. The element shown in Figure 4 of Heimanson *et al.* is merely a heating element (outer heating element 120 and inner heating element 118 in Figure 4 of Heimanson *et al.*). Consequently, Heimanson *et al.* does not disclose, teach or suggest “a labyrinth heat transfer space formed by a concentric or spiral groove provided on at least one of opposite surfaces of said electrode unit and said cooling block,” as recited in claims 2, 37 and 40 or “a labyrinth heat transfer space formed by a concentric or spiral groove provided on at least one of opposite surfaces of said placement table and said cooling block,” as recited in claim 25. For example, as stated in page 7 of the specification, providing a labyrinth heat transfer space between the joining surfaces of the electrode unit and the cooling block, a high sealing effect for the heat transfer space formed between the electrode unit and the cooling block can be maintained in a high temperature range such as temperatures higher than 200°C.

The Office action concedes that Heimanson *et al.* does not teach a heat transfer space 50 formed by a concentric or spiral groove and does not teach a high frequency source applying a high frequency voltage to the electrode structure. The Examiner contends, however, that Gilchrist teaches a similar electrode unit (15, Figure 1) and teaches a labyrinth transfer space (32A-D, Figure 1) formed by concentric grooves (Figure 2, 5) and that it would

have been obvious to one of ordinary skill in the art to implement the Gilchrist *et al.* transfer space formed by concentric grooves.

Applicants submit that the labyrinth heat transfer space is formed by a concentric or spiral groove and is provided on at least one of opposite surfaces of the electrode unit and the cooling block, as recited in claims 2, 37 and 40, or the labyrinth heat transfer space is formed by a concentric or spiral groove and is provided on at least one of opposite surfaces of the placement table and the cooling block, as recited in claim 25. In contrast, Gilchrist *et al.* merely describes an electrode 14 having a cooling system imbedded in the body 15 of electrode 14. The cooling system of Gilchrist *et al.* is comprised of conduits 32a, 32b, 32c and 32d which are embedded in the body 15 of electrode 14 and a coolant, typically water, flows into each conduit 32a-32d (see, col. 4 lines 26-29). Therefore, the cooling system of Gilchrist *et al.* simply constitutes "a cooling block" since a coolant circulates in the conduits which are formed in "the cooling block." Accordingly, Gilchrist *et al.* does not disclose or suggest that the conduits are formed on a surface of the cooling block much less that a labyrinth heat transfer space formed by a concentric or spiral groove provided on at least one of opposite surfaces of the electrode unit and the cooling block as recited in claims 2, 37 and 40 or provided on at least one of opposite surfaces of the placement table and the cooling block as recited in claim 25. Consequently, neither Heimanson *et al.* nor Gilchrist *et al.* disclose, teach or suggest, alone or in combination the subject matter recited in claim 2, 25, 37 and 40.

Therefore, Applicants respectfully submit that claims 2, 25, 37 and 40, and claims 14, 29-31, and 41 which are dependent therefrom, are patentable and respectfully request that the § 103(a) rejection of claims 2, 14, 25, 29-31, 37, 40, and 41 be withdrawn.

Claims 3, 4, 7, 13, 15, and 27 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. Applicants submit that claims 3, 4, 7, 13, 15, and 27 are deemed to be allowable for the at least the reason that they contain all the limitations of either patentable base claim 2 or patentable base claim 25.

Claim 21 has been rewritten in independent form by including all the limitations of base claim 20. Therefore, Applicants respectfully request that claim 21 be allowed.

CONCLUSION

In view of the foregoing, the claims are now in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned "Version with markings to show changes made".

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

Pillsbury Winthrop LLP

By: 

Glenn J. Perry

Reg. No.: 28,458

Tel. No.: (703) 905-2161

Fax No.: (703) 905-2500

GJP/KG
1600 Tysons Boulevard
McLean, VA 22102

(703) 905-2000

Enclosure: Appendix

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

21. (Twice Amended) [The placement table structure as claimed in claim 20,]

A placement table structure used for a processing apparatus performing a predetermined process on an object to be processed in a process chamber in which a vacuum can be formed, the placement table structure including:

a placement table having a heater unit therein so as to heat said object to be processed; a cooling block joined to the placement table and having a cooling jacket which cools said placement table;

a heat resistant metal seal member configured and arranged to seal a heat transfer space formed between said placement table and said cooling block; and

heat transfer gas supply means constructed and arranged to supply a heat transfer gas to said heat transfer space,

wherein a surface of said heat resistant metal seal member is covered by a soft metal film made of a material having a softening point lower than a process temperature of said object to be processed which is softened at a process temperature of said object to be processed.

22. (Twice Amended) [The placement table structure as claimed in claim 20,]

A placement table structure used for a processing apparatus performing a predetermined process on an object to be processed in a process chamber in which a vacuum can be formed, the placement table structure including:

a placement table having a heater unit therein so as to heat said object to be processed; a cooling block joined to the placement table and having a cooling jacket which cools said placement table;

a heat resistant metal seal member configured and arranged to seal a heat transfer space formed between said placement table and said cooling block; and

heat transfer gas supply means constructed and arranged to supply a heat transfer gas to said heat transfer space,

wherein a surface of a member contacting said heat resistant metal seal member is covered by a soft metal layer made of a [low] melting point material which is softened at a process temperature of said object to be processed.

End of Appendix